On the Electrical Relations of Metals and Metalliferous Minerals, By R. W. Fox, Esq. Communicated in a letter to Davies Gilbert, Esq., F.R.S.

The author states that he has ascertained that the crystallized gray oxide of manganese holds a much higher place in the electro-magnetic scale than any other body with which he has compared it, when immersed in various diluted acids, and alkaline solutions: he also gives a table of the order in which other metals and minerals stand in this respect. When employed in voltaic combinations he found that on being so arranged as to act in opposition to one another, the direction of the resultant of their action, as indicated by the deflection of the magnetic needle, did not coincide with the mean of the directions of the needle when under the separate influence of each. Hence he infers that the needle is not a true index of the electricity transmitted; and that electro-magnetic action does not depend on a continuous electric current. He conceives, therefore, that the phænomena are better explained on the hypothesis of pulsations which he formerly advanced. A galvanometer of a new construction is employed by the author for weighing the deflecting force of these electrical impulses.

On the Circulation of the Blood in Insects. By John Tyrrell, Esq., A.M. Communicated by P. M. Roget, M.D., Secretary to the Royal Society.

The observations on the circulation of the blood in insects, which is a discovery of comparatively recent date, have been made almost exclusively on insects in the larva state; but the author of the present paper details a variety of observations of the same fact in insects which had arrived at their last or perfect stage of development. Among the *Myriapoda*, the circulation was traced in the *Geophilus*, and still more distinctly in the *Lithobius forficatus*. The author also detected the circulation, by the motion of globules, through the nervures of the wings of various perfect insects, namely, of some species of the *Hemerobius*, *Panorpa*, *Phryganea*, and *Ephemera*; and particularly in the *Musca domestica*, or common house-fly. The paper is accompanied by drawings of the appearances described.

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January 22, 1835.

JOHN WILLIAM LUBBOCK, Esq., Vice-President and Treasurer, in the Chair.

A paper was read, entitled, "Notes on the Temperature of the Air and the Sea, &c., made in a Voyage from England to India, in the Ship Hoogly, Capt. Reeves, in the year 1833." By Alexander Burnes, Esq., F.R.S.

The observations contained in this communication are recorded in a tabular form, and show that the variations of the temperature of the sea accord very closely with those of the air, in all the latitudes which the author traversed in this voyage.